

COMPOSITARUM MEXICANARUM PUGILLO SUPPLEMENTUM

Rogers McVaugh
University of North Carolina
Chapel Hill, North Carolina 27514

The five taxa that are newly described in the following pages are all based on material that was received too late for inclusion in an earlier paper, *Compositarum Mexicanarum Pugillus* (Contr. Univ. Michigan Herb. 9: 359-484. 1972). The comments and new names in this paper, like those in the earlier one, are presented as a necessary preliminary to a treatment of the Compositae for a proposed *Flora Novo-Galiciana*. The scope of the flora was discussed in the 1972 paper and in other sources cited there. The part of the flora dealing with the Compositae (volume 12) is in press as this paper appears in print. The drawings for figures 1-4 were made by Karin Douthit.

Verbesina pietatis McVaugh, sp. nov.

Fig. 1.

Perennis, herbacea, 1-1.5 m alta, caulibus exalatis foliosis annuis, inflorescentia excepta simplicibus, e rhizomate lignoso nudo oriundis; folia ramique alterni; inflorescentia sparse hispidula, caulis versus basin glabrescens; folia supra scabrida, subtus scabridula venis pilosis, pilis rigidis acutis erectis; phyllaria dense strigosa; folia elliptica, penninervia, 8-10 cm longa, 2.5-4 cm lata, apice acuta, basi acuta vel cuneata, sessilia, vel petiolo crasso nudo 3-5 mm longo; folia superiora sensim minora; margines laminarum saepe revolutae, ut videtur integrae sed dentibus crassis callosis remotis instructae; capitula pauca subumbellata, terminalia pedunculis 5-8 mm longis suffulta, cetera (2-6) pedunculis adscendentibus approximatis 2-5 cm longis, vel pedunculis 1-2 elongatis ramosis 2-3-cipibus; capitula radiata, 2.5 (-3?) cm lata (radiis extensis mensa), fructu subglobosa, 1.5 cm lata; phyllaria ca 20, intima (flores radii 11-15 subtendentia) elliptica vel ovata, acuta, 4-5 mm longa, 1.5-2 mm lata, submembranacea; phyllaria exteriora pauca, crassiora, subfoliacea, usque ad 7 mm longa, 4 mm lata; flores radii flavi, pistillati, ut videtur fertiles, ligulis ellipticis, extus pubescentibus, 8-10 mm longis, 4-5 mm latis, tubo ca 1.5 mm longo piloso; achaenia radii epapposa vel aristis brevibus 1-2 instructa, nigrescentia, 2.5 mm longa, sparsim strigosa, 3- vel 5-angularia vel plana; flores disci multi (plus quam 100), corollis flavis 4 mm longis, tubo crasso piloso 1 mm longo vel ultra, faucis cylindricae vel anguste infundibuliformis venis sparsim pilosis, lobis ca 0.7 mm longis, pilis paucis grossis instructis; antherae nigrescentes ca 2 mm longae, basi minute auriculatae, appendicibus pallidis ovatis 0.5 mm longis; styli rami 1.2-1.3 mm longi, apicibus deltoideis applanatis; achaenia (paullo immatura) valde applanata marginibus attenuatis, atrofusca, e basi ad apicem utrinque alata, apice emarginata, corpore glabro, sagittato-obovato, 3-3.5 mm longo, 1.7-1.9 mm lato, alis membranaceis, ciliatis, distaliter latioribus (usque ad 0.7 mm latis) erosisque, ultra corporis in auriculas 0.5-0.8 mm prolongatis; aristae pappi plerumque 2, ad alas non adnatae, longior 1 mm longa adscendens tenuis antrorse barbata, alia plerumque brevior; squamellae nullae; paleae 5-6 mm longae, base lineari conduplicata, parte distali latiore, strigosa, in cuspidem pallidam acutam recurvatam terminanti.

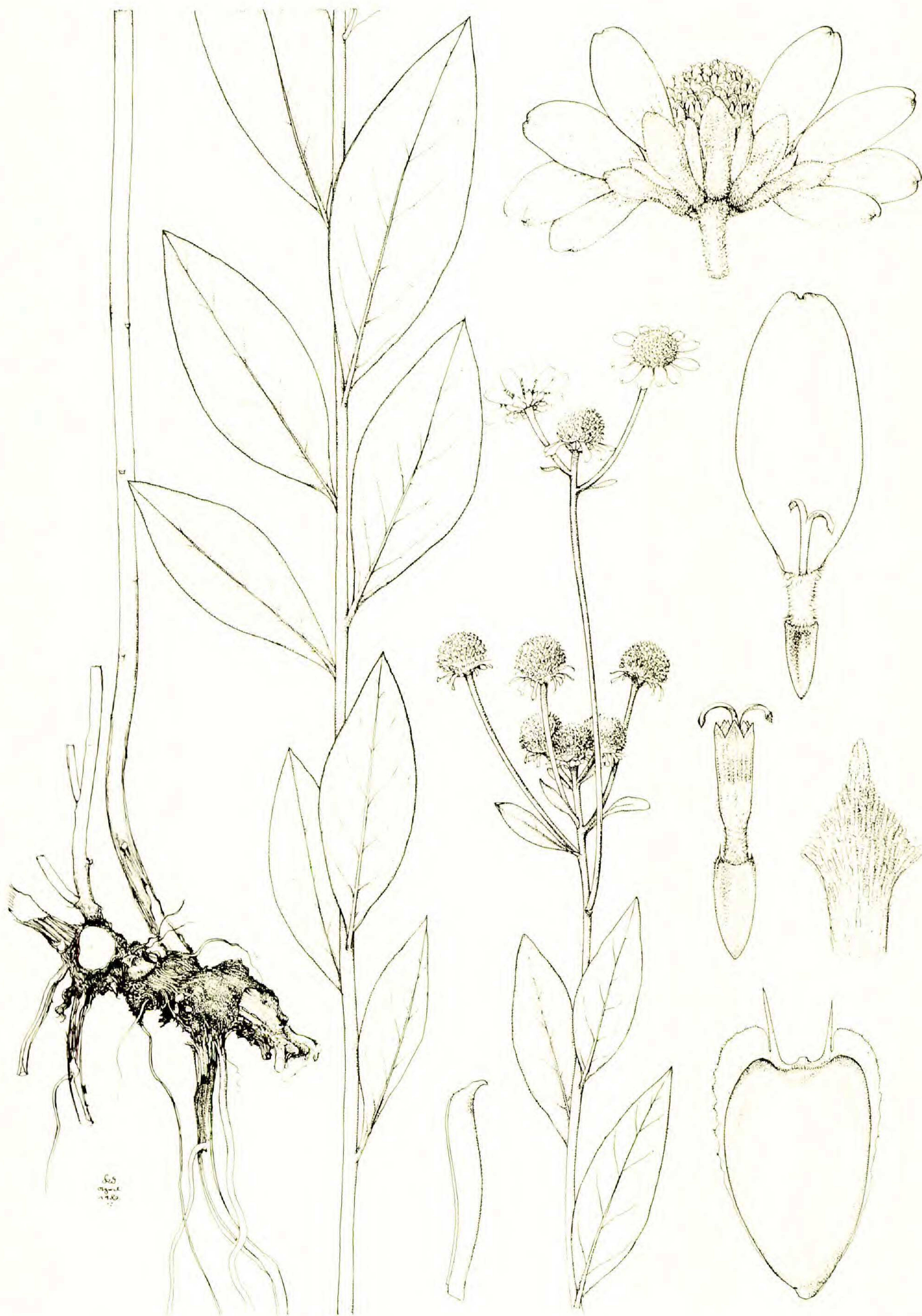


FIG. 1. *Verbesina pietatis* (Rzedowski & McVaugh 504, type). Portions of flowering plant, $\times 0.5$; flowering head with facing ray removed, $\times 2.5$; ray-flower, and disk-flower, $\times 5$; slightly immature disk-achene, $\times 10$; pale, $\times 5$; abaxial view of style-tip, greatly enlarged.

Among the perennial herbaceous yellow-rayed species of *Verbesina* with wingless stems and alternate leaves, this one is distinctive because of the relatively broad harsh elliptic leaves ca 3 times as long as wide, the stout woody horizontal rhizomes, and the recurved tips of the pales. The species with which it might be confused in the key, namely those of the *V. oxylepis-parviflora-hypomalaca* complex, are more pubescent and quite different in appearance, with oblong to lanceolate or linear leaves mostly 5–15 times as long as wide, the stems from a short woody caudex, and the pales with erect tips.

MICHOACAN: Cerro Grande de Cujaruato, SW of La Piedad, rocky summits in sparse oak forest, 2500 m, flowering 16 Nov 1971, *Rzedowski & McVaugh 504* (MICH, the type). Otherwise unknown.

It seems strange that such a conspicuous plant should have remained so long undetected in the mountains of the Central Plateau of Mexico, where narrow endemism is not the rule. It may transpire that an earlier name is available for it. The mountain on which it occurs, however, is a very isolated forested peak rising high above the surrounding grassland, and supporting a flora including dense stands of a shrubby species of *Ceanothus* which is unknown anywhere else in this part of Nueva Galicia.

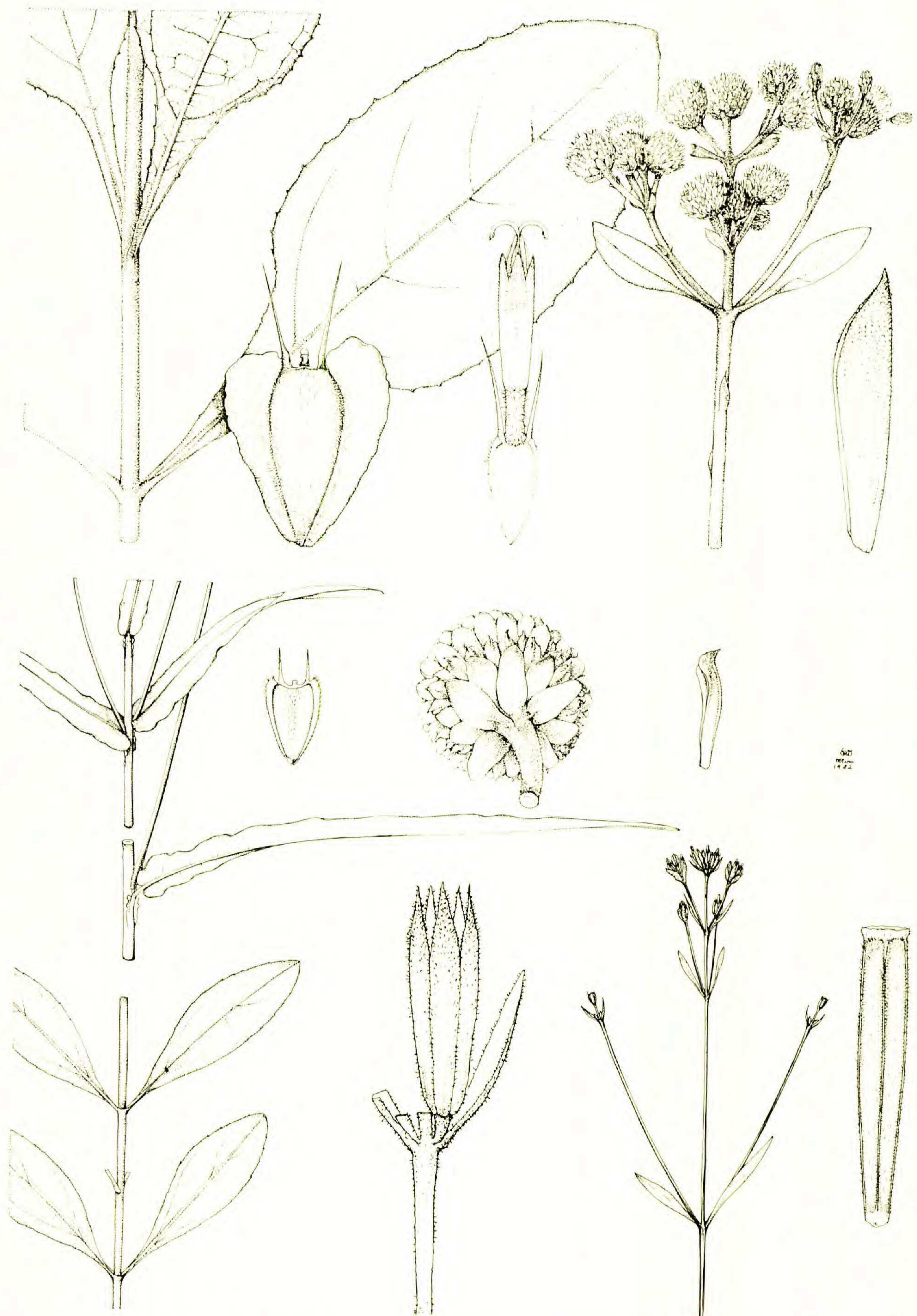
Verbesina curatella McVaugh, sp. nov.

Fig. 2.

Frutex usque ad 2 m altus, ramis foliisque oppositis, pilis brevibus multicellularibus cavis dense obsitus; rami exalati, pilis sordidis vel nigricantibus flaccidiusculis 0.5–1 mm longis crebre obsiti; folia rigida, supra ad modum *Curatellae* perscabra, subtus scabriuscula, reticulata, venis venulisque crebre pilis pallidis acutis erectis obsitis; laminae penninerves, ellipticae vel ovatae (vel summae obovatae), 12–20 cm longae, 5–8 cm latae, apice obtusae vel subacutae, basi longe cuneatae, quasi sessiles, marginibus calloso-dentatis; ramos foliosos corymbi compacti parvibractaeti, 10 cm lati, 7 cm longi, ramulis oppositis, terminantes; capitula discoidea, fructu ca 2 cm lata, 1.3 cm alta, sub anthesi ut videtur campanulata, basi obtusa, 1.3 cm alta; pedunculi crassi 2–10 mm longi; phyllaria ca 11–13, imbricata, dense brevopilosa, plusminusve 2–3-seriata, exteriora (4–5) carnosiuscula, ovata, 2–3 mm longa; alia usque ad 5–6 mm longa, 2–3 mm lata, oblongo-elliptica, obtusa; intima in paleas transientia et achenia sterilia subtendentia; flores disci ca 35–55, corollis flavo-viridibus, 5.5–6.5 mm longis, fere cylindricis, tubo angustiore dense piloso, fauce longa glabra, lobis pilosis 0.7–1 mm longis; antherae nigrescentes 2–2.5 mm longae, appendicibus parvis triangularibus 0.3–0.5 mm longis; styli ramuli ca 2 mm longi, apicibus attenuatis; achenia plana, late obovato-deltaidea, e basi ad apicem alata, 5.5–8 mm longa, corpore 2.5–3 mm lato, verrucoso, strigoso, alis pallidis paullo suberosis, distaliter latioribus usque ad 3 mm latis, prope marginibus strigosis, apice truncatis vel supra achaenium productis, ad bases aristarum erectarum subulatarum 2 subaequalium, 4–6 mm longarum adnatis; squamellae nullae; paleae oblanceolatae, conduplicatae, 7–11 mm longae, apicibus dense pilosis fuscatis, encrassatis, paullo cucullatis.

JALISCO: Mpio. de Cabo Corrientes, above El Tuito, road to Mina del Cuale, rocky stream-valleys in region of pine-oak forest, the valleys with *Podocarpus*, oaks, and other deciduous trees, 850–1150 m, fruiting 16–19 Feb 1975, *McVaugh 26438* (MICH, type).

Unknown except from the type, this is distinctive among the shrubby species of *Verbesina* with discoid heads because of its harshly scabrous (whence the epithet *curatella*) ovate to obovate leaves, the dense sordid or blackish pilosity of the branches, and the large heads with numerous disk-flowers.



FIGS. 2-4. *Verbesina* and *Stevia*. *Verbesina curatella* (upper row of figures, from the type, McVaugh 26438). Portion of stem with cauline leaves, $\times 0.5$; disk-achene, $\times 3.5$; disk-flower, $\times 4$; portion of inflorescence-branch, $\times 0.5$; pale, $\times 4$. *Verbesina villaregalis* (middle figures, from the type, Puga 5744). Leaves at base of inflorescence, and cauline leaf below, $\times 0.5$; slightly immature achene, $\times 3.5$; head slightly before anthesis, from below, $\times 3.5$; pale, $\times 4$. *Stevia zacatecana* (lower figures, from the type, McVaugh 25940). Portion of stem with cauline leaves, and terminal portion of inflorescence before anthesis, $\times 0.5$; involucre from over-mature inflorescence, $\times 5$; achene, $\times 10$.

Verbesina villaregalis McVaugh, sp. nov.

Fig. 3.

Ut videtur frutex vel arbor (partes basales ignotas), *V. culminicola* similis; inflorescentia capitulaque fere ut in *V. culminicola*; rami alterni vel subalterni, foliorum basibus alati, alis initio viridibus, nonnunquam linearibus, decurrentibus 1–1.5 cm longis, sed plerumque valde corrugatis, 5–8 mm longis, 2–4 mm latis; partes vegetativae pallide pubescentes pilis appressis, sed folia subtus glauca et glabra (secus costam pilis sparsis exceptis); folia anguste oblongo-lanceolata, lateribus fere parallelis; laminae 10–15 cm longae, 1–1.5 cm latae, 6–10 (–15)-plo longiores quam latiores, remote et non profunde serrato-denticulatae, basi subcordatae vel late rotundatae, e basi sensim ad apicem longiacutum attenuatae; folia majora inflorescentiae basi petiolis 1–2 mm longis; flores disci corollis 2.5–3 mm longis; antherae ca 1.5 mm longae, nigrescentes, pallide striatae; achaenia disci obovato-sagittata, alis inclusis 3.5 mm longa, 2 mm lata; paleae 4–4.5 mm longae, cuspidate terminali maturitate plusminusve recurvato-uncinata.

Species Luz María Villarreal de Puga, Instituti Botanici Universitatis Guadalajarae Praeceptoris, grate nominavi.

JALISCO: Mpio. de Mascota, between Cerro del Molcajete and Laguna de Juanacatlán, in pine-oak forest, 1800–2110 m flowering 30 Dec 1973, Luz Ma. Villarreal 5744 (MICH, the type). (Sra. de Puga's name appears on most of her herbarium labels as Luz Ma. Villarreal, but she informs me that she would prefer to have her collections cited under her married name of Puga, so the foregoing should be cited as *Puga 5744*).

Among the shrubby species of *Verbesina* with small yellow radiate heads, alternate and decurrent leaves or winged stems, this one may be confused with other supposed endemics in western Jalisco, e.g. *Verbesina culminicola* and *V. glaucophylla*. In the latter, at least in the type, the heads are discoid, but this may not be a fundamental character. None of the three species is sufficiently known, and their relationships need to be investigated further. From *V. culminicola*, *V. villaregalis* may be separated as follows:

1. Leaves green beneath, long-tapering to base, 1.5–3 cm wide, 4–7 times as long as wide; petioles 5–10 mm long or the upper shorter; tips of pales hooded with erect points.
V. culminicola.
1. Leaves glaucous beneath, abruptly rounded at base, 1–1.5 cm wide, (6–) 10–15 times as long as wide; longest petioles at the base of the inflorescence 2 mm long; tips of the pales with recurved points.
V. villaregalis.

Verbesina parviflora (H.B.K.) Blake, var. **zacatecana** McVaugh, var. nov.

Perennis, herbacea 20–65 cm alta, simplex vel ramis paucis alternis adscendentibus, caulis exalatis, foliis linearibus alternis vel inferioribus oppositis, capitulis radiatis longe pedunculatis; flores radii ca 8, pistillati sed ut videtur steriles; flores disci numerosi (50–?75); achaenia alata, obovata vel suborbicularia; paleae membranaceae, apicibus rectis acutis; a var. *parviflora* foliis linearibus 3–7 mm latis, 10–15-plo longioribus quam latioribus differt.

ZACATECAS: Summits between Jalpa and Tlaltenango, ca 35 km W of Jalpa, in open oak forest, 2500 m, in fruit 23 Oct 1970, Rzedowski & McVaugh 1044 (MICH, the type); ca 10 km S of Tlaltenango, near Telesteipa, rocky terrain in oak forest, in flower 13–14 Jul 1976, S. Correa 123 (MICH), 140 (MICH).

This plant seems not to differ in any obviously significant way from typical *Verbesina parviflora* except in the width of the leaves. In var. *parviflora*, which ranges from Chihuahua and northern Nayarit to San Luis Potosí, the leaves are (6–) 10–15 (–20) mm wide, 3–6 times as long as wide. Apparently this narrow-leaved plant of Zacatecas represents a local population of the more widespread upland species.

***Stevia zacatecana* McVaugh, sp. nov.**

Fig. 4.

Frutex ramosus 1 m altus, fere glaber, foliis junioribus sparsim pilis flaccidis ad venas obsitis; inflorescentia grosse stipitato-glandularis; folia, et rami (inflorescentiae eis inclusis) oppositi; folia triplinervia, firmisscula, in siccitate paullo nitida, subtus pallidiora, utrinque dense globulis resinosis obsita; folia caulinea principalia 4–8 cm longa, (0.5–) 1–2 (–2.5) cm lata, ovato-lanceolata, apice obtusa vel subacuta, basi cuneato-attenuata, petiolo indistincto marginato, vel usque ad 0.5–1.5 cm longo; laminae utro latere dentibus 5–7 non profunde crenato-serratae; venae majores valde adscendentes, subtus prominulae, venis ceteris inconspicuis; inflorescentia pedunculata, glomerulis paucis compactis 1–2 cm longis latisque, ramulis patentibus, bracteis angustis; capitula cylindrica, 6–7 mm longa, sessilia, cum bracteis pedunculisque valde glandulosa; corollae (maturae non visae) glabrae; alabastra sparsim apice stipitato-glandulosa; achaenia homomorpha linearia 3.5–3.8 mm longa exaristata, angulis intervallisque minute hispidula; pappus coroniformis vix 0.2 mm longus.

ZACATECAS: Summit ridges between Jalpa and Tlaltenango, steep humid ravines in montane oak forest, 2550 m, with inflorescences developing 24 Jan 1975, *McVaugh 25940* (MICH, holotype, and isotype).

Known only from the type locality, where very abundant on the high sheltered forested slopes near the flat summits. First seen in December 1970, when all the plants were sterile, and again, sterile but putting out new leafy shoots, in October 1973 (*Rzedowski & McVaugh 962*, ENCB, MICH). Probably the height of the flowering season is in March or April.

This is evidently a member of the group of species that B. L. Robinson (*The Stevias of North America. Contr. Gray Herb. II. 90: 90–159. 1930*) called sub-series *Fruticosae*, and J. L. Grashoff (*A systematic study of the North and Central American species of Stevia. Ph.D. dissertation, University of Texas. pp. i–xiv, 1–609. Austin, 1972*) called series *Fruticosae*. The plants are real shrubs with stems persisting more than one season. There are about 25 species, all according to Grashoff completely sexual, many with the pappus reduced to an awnless crown in all the achenes. Grashoff contrasts eight species in which (as in *S. zacatecana*) the achenes are hispid and the corolla-lobes glabrous. Of these one is white-tomentose, and three normally have aristate achenes. Of the remaining four, *Stevia lucida*, *S. nelsonii*, *S. salicifolia*, and *S. subpubescens*, none has the combination of copiously stipitate-glandular inflorescence, essentially glabrous plant-body, and consistently opposite branching in the inflorescence clusters.